

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-30 (cancelled)

Claim 31 (Previously Presented): A lithographic illumination shaping device comprising:

a first reflecting objective including an input end arranged to accept input light having an on-axis illumination pattern, the first reflecting objective further including a first reflective surface arranged to reflect the input light; and

a second reflecting objective including an output end, the second reflecting objective further including a second reflective surface arranged to receive the input light from the first reflective surface, and further arranged to reflect the input light through the output end as output light having an off-axis illumination pattern.

Claim 32 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first reflective surface comprises a first paraboloidal reflective surface having a first focal point, and wherein the first reflecting objective is arranged to reflect the input light through the first focal point.

Claim 33 (Previously Presented): A lithographic illumination shaping device as described in claim 32, wherein the second reflective surface comprises a second focal point aligned with the first focal point, and wherein the second reflective surface is arranged to receive the input light from the first paraboloidal reflective surface through the first and second focal points.

Claim 34 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the second reflective surface comprises a second paraboloidal reflective surface having a focal point, and wherein the second paraboloidal reflective surface is arranged to receive the input light from the first reflective surface through the focal point.

Claim 35 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the output light has a substantially off-axis, radially symmetrical illumination pattern.

Claim 36 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the output light has an off-axis illumination pattern symmetrical about an optical axis.

Claim 37 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the output light has a substantially off-axis, asymmetrical illumination pattern, wherein the asymmetry is with respect to at least one of intensity and shape.

Claim 38 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the on-axis illumination pattern comprises a conventional illumination pattern and the off-axis illumination pattern comprises at least one of an annular illumination pattern, a concentric annular illumination pattern and a multipole illumination pattern.

Claim 39 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first reflecting objective comprises a first plurality of off-axis paraboloid sections each having a reflective surface with a first focal point and the second reflecting objective comprises a second plurality of off-axis paraboloid sections each having a reflective surface with a second focal point aligned with a first focal point of one of the first plurality of off-axis paraboloid sections.

Claim 40 (Previously Presented): A lithographic illumination shaping device as described in claim 39, wherein the first reflecting objective comprises an infinite number of the off-axis paraboloid sections and the plurality of first focal points comprise a first focal ring, and wherein the second reflecting objective comprises an infinite number of the off-axis paraboloid sections and the plurality of second focal points comprise a second focal ring aligned with the first focal ring.

Claim 41 (Previously Presented): A lithographic illumination shaping device as described in claim 39, wherein the first and second reflecting objectives each comprise two paraboloid sections.

Claim 42 (Previously Presented): A lithographic illumination shaping device as described in claim 39, wherein the first and second reflecting objectives each comprise four paraboloid sections.

Claim 43 (Previously Presented): A lithographic illumination shaping device as described in claim 39, wherein the paraboloid sections of the first reflecting objective comprise the same curvature as the paraboloid sections of the second reflecting objective.

Claim 44 (Previously Presented): A lithographic illumination shaping device as described in claim 39, wherein the paraboloid sections of the first reflecting objective comprise a different curvature than the paraboloid sections of the second reflecting objective.

Claim 45 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first and second reflecting objectives are centered on an optical axis of a lithography system and wherein the first and second reflecting objectives are arranged symmetrically about the optical axis.

Claim 46 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first reflective surface comprises two or more first principal axes and the second reflective surface comprises two or more second principal axes, and wherein at least one of the first principal axes and at least one of the second principal axes are coaxial.

Claim 47 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first reflective surface comprises two or more first principal axes and the second reflective surface comprises two or more second principal axes, wherein at least one of the first principal axes is at an angle to at least one of the second principal axes.

Claim 48 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the input light is collimated.

Claim 49 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first and second reflective surfaces are arranged to reflect light comprising wavelengths below 248 nanometers.

Claim 50 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first and second reflective surfaces are arranged to reflect light comprising wavelengths between 8 nanometers and 193 nanometers.

Claim 51 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first and second reflective surfaces are arranged to reflect light comprising a wavelength of at least one of approximately 248 nanometers, approximately 193 nanometers, approximately 157 nanometers and approximately 13 nanometers.

Claim 52 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first and second reflective surfaces are arranged to reflect at least one of deep ultraviolet illumination and extreme ultraviolet illumination.

Claim 53 (Previously Presented): A lithographic illumination shaping device as described in claim 31, wherein the first and second reflective surfaces comprise at least one of fused silicon impregnated with fluorine, calcium fluoride and molybdenum.

Claim 54 (Previously Presented): A lithographic exposure system having an optical axis comprising the lithographic illumination shaping device of claim 31.

Claim 55 (Previously Presented): A lithographic exposure system as described in claim 54 further comprising an illumination source arranged to produce the input light.

Claim 56 (Previously Presented): A lithographic exposure system as described in claim 54 further comprising a reticle arranged to diffract the output light into at least a first and second non-diffracted order symmetrically arranged about the optical axis, and a first and second higher diffraction order symmetrically arranged about the optical axis.

Claim 57 (Previously Presented): A lithographic exposure system as described in claim 56, wherein the second reflecting objective is arranged to symmetrically project the output light onto the reticle at an angle to the optical axis.

Claim 58 (Previously Presented): A lithographic exposure system as described in claim 56 further comprising a condenser system arranged to symmetrically redirect the output light onto the reticle at an angle to the optical axis, wherein the condenser system comprises at least one of a mirror and a lens.

Claim 59 (Previously Presented): A lithographic exposure system as described in claim 56 further comprising a projection system arranged to focus the first and second non-diffracted orders and the first and second higher diffraction orders onto a substrate wafer, wherein the projection system comprises at least one of a mirror and a lens: